ROHIT LAWKUSH MANE

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OBJECTIVE:

Seeking job roles in Electronics & Telecomm, Electrical, Controls Systems, or Robotics Engineering and other suitable job roles.

EDUCATION:

MS, Robotics and Autonomous Systems (Electrical Engineering), **Aug 2022- May 2023**
Arizona State University, Tempe, Arizona (GPA – 3.16 / 4.0) (1 Academic Year) (ppd -2026)

B. Tech, Electronics and Telecommunication Engineering,
MIT Academy of Engineering, Pune, India: (GPA - 7.55/ 10.0) **Aug 2016 - Oct 2020**

RELEVANT COURSEWORK:

Arizona State University (Fall'22): Robotic System I & II, Kinematics and Dynamics, Python, Expressive Robotics.
MIT Academy of Engineering: Control Systems, Fundamentals of Robotics, Kinematics and Dynamics of Robotics, Robotics Vision

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TECHNICAL SKILLS:

Core Expertise: Robot Design | Communication | Systems Engineering | Electronics.
Skills /Tools: ROS | Gazebo | Arduino | LabVIEW | MATLAB | MS Office | Proteus | NI Multisim | AutoCAD | Ansys HFSS | Python
Certifications: ROS For Beginners II - Localization, Navigation and SLAM - Jan 2024 | ROS for Beginners - Basics, Motion and OpenCV - Dec 2023 | AI for Robotics: Nanodegree Course - Udacity – Nov 2022 | MATLAB Course Certificates - Sept - Oct 2022 | Driving Cars Specialization - Jun 2021 | Control of Mobile Robotics - Aug 2020 | Python for Everybody - Course Specialization - Jun 2020 |C++ Programming - Aug 2018 | Research Writing, IIT Kharagpur - Feb 2018 | C Programming - Dec 2017.

RESEARCH EXPERIENCE:

Single Degree of Freedom Helicopter: IEEE Conference in 'International Conference on Advances in Computing, Communication and Control, 6th Edition', at Fr. Conceicao Rodrigues College of Engineering, Bandra, Mumbai.
RF Energy Harvesting using Efficient Power Management System: Conference titled, '2nd International Conference on Communication and Information Processing (ICCIP), conducted online at NCER College, Talegaon Dabhade, Pune.

WORK EXPERIENCE:

Shalya – Xcellence Medical Technologies Pvt. Ltd. **Nov 2024 – Apr 2025**
• Developed kinematics for a surgical robot motion planning and programmed a control flow using Node-RED to implement the same.
• Simulated surgical robotic arm kinematics in MATLAB using the Peter Corke Toolbox and implemented EtherCAT using the IGH Library.
• Configured EtherCAT on Intel GIGA IPC QBiP-7100A, integrating ZeroErr rotary actuators through the Linux CLI and C Programming.

Research Internship – Indian Institute of Technology, Bombay (IIT-B): **Oct 23 – (Cont.) Jun 24**
• Gained proficiency in ROS1, ROS 2, Gazebo, and SLAM.
• Studied and reviewed previously documented research work on Robotic Planning, Kinematics, and Robotic Perception.

Graduate Research Aide – WCPH_ Arizona State University: **Feb 2023 – Mar 2023**
• Designed a splitting valve apparatus using AutoCAD - Fusion 360.
• Advocated and updated 2 unique design details of the apparatus to the research supervisor.

Graduate Engineer Trainee. '_VOIS' (Vodafone Intelligent Solutions): **Aug 2020 – Mar 2021**
Testing (Germany- Greece Team) - Responsibilities Assigned:
• Executing about 50 Test Cases every day in ALM. Gained experience in working on Oracle, WinSCP, and ALM.
• Completion of assigned test cases, _VOIS portal activities, and daily reporting.

Electronics Engineering Project Intern, V. Kumar Solutions Pvt. Ltd., Pune, India. **Jun 2019 - Aug 2019**
• **Developed two projects: i) Measuring Device, ii) Pulse & Temperature Monitoring Device:**
•Fabricated a device using: Arduino (Uno & Nano), ultrasonic sensors & 7-segment LEDs, Boot-loaded IC ATMEGA 328p. • Used Proteus, Ni Multisim, Dip-Trace, pulse & temperature sensors & ZigBee module; 16x2 LCD to display temperature & pulse.

Digital Marketing Intern & Event Management Intern, Event-Beep LLP, Pune, India. **Jun 2018- Jul 2018**
• Interacted with customers to understand marketing methodologies & marketing survey strategies (market segmentation, market information, market performance, customer satisfaction, branding, etc.).

PROJECTS:

Surgical Robot - Kinematics, Design and Simulation, and Implementation **Nov 4, 2024 - Apr 10, 2025**
• Designed and implemented forward and inverse kinematics for a Surgical Robotic system, enabling precise and accurate motion planning.
• Designed and simulated the Surgical Robotic Arm using the Peter Corke Robotics Toolbox, validating kinematic models and motion paths through MATLAB simulation tools.
• Utilized flow-based programming tool Node-RED to develop system logic flow for the kinematics in the surgical robotic system.
• Implemented EtherCAT communication protocol on Intel GIGA IPC QBiP-7100A board using the IGH EtherCAT library, utilizing ZeroErr rotary actuators for precise motion control and synchronization in the robotic system.

Kinetic Expression of a Water Ripple – (Expressive Robotics): **Jan. 8, 2023 – Feb 28, 2023**
• Designed a model using Fusion 360 and utilized laser cutting tools for implementing the desired crankshaft mechanism for the model.
• Facilitated an Arduino UNO with a Stepper Motor to make the model mechanism work efficiently without any friction.

• Successfully executed the expression of a water ripple through the intricately functioning motion of the mechanism.

Miniature Caterpillar Strandbeest Mechanism – (Expressive Robotics): **Mar. 6, 2023 – Apr 30, 2023**

• Theo Jansen's Caterpillar Strandbeest inspired Caterpillar Mechanism Design.
• Used laser-cutting to get the desired wooden part to make a single-strand link of the chain.
• Created a chain of single-strand linkages around the common vertebra of the Caterpillar Model.

Line Follower Drone (Parrot Mambo) Bot using MATLAB and Simulink: **Jan. 8, 2023 – April 24, 2023**

• Used Parrot Mambo Mini drone and implemented the Simulink Model into it.
• Implemented Color Detection and Image Thresholding to detect the line of the desired color.
• Successfully executed the Line-Follow task using camera vision and an ultrasonic sensor for the Drone's optimal propagation.

Gesture Controlled Robotic Arm using Accelerometer: **Nov. 5, 2018 – Dec. 15, 2018**

• Designed a 3D printed, 3-DOF robotic arm using 4 micro servo motors, MPU 6050, and potentiometers.
• Controlled the robot arm both wired & wirelessly using an RF433 module through hand gestures over roll, pitch, and yaw angles.

Electronic Bicycle Lock with an Alarm: **Aug 10, 2017- Sept. 28, 2017**

• Fabricated an alarm circuit using IC UM3561 (Alarm IC), and NPN Transistor BD139, Speaker (8 Ohm, 0.5 W), Battery, push buttons, and Resistors. IC UM3561 produces 4 different sounds of a Siren / Alarm.
•The Alarm was successfully tested, and IC produced 4 different sounds at the user's choice. Effective till an area of about 10 m.

AWARDS: "Young Scientist and Research Excellence Award" by IIRSG 2020 with Research Index-1. – Dec 2020.

EXTRA-CURRICULAR ACTIVITIES:

• **ISRO:** Course on Planetary Geosciences with special emphasis on Mars and Moon, IIRS (ISRO), Jul 2020.
• **Article:** Wrote an article in 'Ajan Vriksha'- College Magazine, School of Electrical Engineering, MITAOE, Jan 2019.
• **Club Member:** Member of Shutterbugs Photography Club at MITAOE, Aug 2017 - May 2018.
• **Volunteering:** Organized Photography workshop for all interested college students, Jan – Feb 2017.
• **Photography Competition:** 3 lead photographs among a few clicked were published in 'Ajan Vriksha', College Magazine, Feb 2017.

LANGUAGE: English, Marathi, Hindi (Read/Write/Speak).
